Table 4.3-7
Sources of Ambient Marine Noise in the Santa Monica Bay

Noise Source	Frequency (Hertz)	Pressure (dB re 1 µPA)
Ambient Ocean Noise		
Wind and waves	200–1000	66–95
Precipitation	>500	
Biological (shrimp, fish, mammals)	12–100,000	95–210
Baleen whales	15–8,000	150–190
Toothed whales, porpoises	400–8,000	150–190
Platform Operations	~ 5	119–127
Vessel Traffic		
Outboards and small boats	~100–1,000	150–160
Vessels 180 to 280 ft (55 to 85m) in length	<100–500	170–180
Large container ships, supertankers	<100–500	185–200
Military Exercises/Operations		
Low-frequency sonar activities	<2,000	Variable; ~160 at 2 km
Mid-frequency sonar activities	2,000–20,000	Variable

Note: dB re 1 µPa (decibels measured relative to one microPascal) is a measure of underwater sound pressure. 20 dB re 1 µPa is about the hearing threshold, while 140 dB re 1 µPa is the pain threshold. dB re 1 μPa^2/Hz is a measure of sound-pressure density per unit frequency. It is used to describe sounds distributed across broad frequency bands.

Source: Adapted from Banner and Cato 1988, McCauley 1994, Scrimger and Heitmeyer 1991, and Richardson et al. 1995.

The noise produced by vessel traffic, including the tanker and support vessels that visit and operate from the Marine Terminal, represent one of the most pervasive forms of man-made noise in the ocean (McCauley 1994). In areas of high shipping density, vessel traffic produces a nondescript low frequency noise (< 500 Hz) that propagates extremely well in deep water. Shipping generally dominates ambient noise at frequencies from 20 to 300 Hz. Broadband source levels of ships between 180 and 280 feet (55 and 85 m) in length are approximately 170 to 180 dB re 1 µPa, with most energy below 1 kHz (Richardson et al. 1995). Scrimger and Heitmeyer give source levels for 50 different merchant ships that range over 140 to 170 dB re 1 μPa^2/Hz between 100 to 700 Hz (1991). Use of bow thrusters increases broadband sound levels, in one case by 11 dB, and includes higher frequency tonal components up to one kiloHertz (kHz).

Many marine species are highly dependent on sound for communication, navigation, foraging, and predator avoidance. Although knowledge in this area is limited, hearing capabilities have been studied for 22 of the approximately 125 species of living marine mammals and approximately 100 of the 25,000 species of bony fish. However, a significant limitation of the available data is that many of these studies, particularly for marine mammals, involve extremely small sample sizes, while data on fish have been collected mostly from freshwater species.

Of the cetaceans, baleen whales are thought to be most sensitive to low frequency sounds (~ 0.01 kHz to 5 kHz) based on characteristics of their auditory morphology and sound production. However, no empirical data on baleen whale hearing exist. Most odontocete cetaceans that have been directly tested have relatively good hearing sensitivity across a broader range of mid to high frequencies (~4 kHz to 100 kHz). A few odontocete cetaceans, including harbor porpoises and river dolphins, appear to be specialized for hearing very high frequency sounds (~4 kHz to150 kHz or higher) as well.

Pinnipeds are essentially “amphibious” in that they perform important life functions both above and below water. Consequently, their various auditory adaptations enable fairly sensitive hearing across fairly wide frequency bands in both air and water. They can be segregated into two functional underwater hearing groups.

Otariids (sea lions and fur seals) have been shown to be sensitive to a fairly wide range of mid frequencies (~1 kHz to 30 kHz), while walruses and phocids or “true” seals (harbor seals) are generally capable of hearing across a wide range of low to mid sound frequencies (~0.2 kHz to 50 kHz). The differences in hearing bandwidth in air between pinniped groups are less striking.

Based on the limited available data, sirenians (manatees and dugongs) appear to have a relatively narrow range of hearing sensitivity (~5 kHz to 30 kHz), while essentially nothing is known about hearing in polar bears and sea otters. Hearing capabilities of sea turtles have not been studied in any depth since pioneering work from 1950 until the 1970s (Gales et al. 2003).

Fish sensitivity to noise depends on whether they have any sort of auditory mechanisms for improving hearing sensitivity (Southall 2005). Hearing “generalists” lack any sort of auditory mechanisms for improving hearing sensitivity. These species generally have relatively poor hearing sensitivity over a narrow band of low sound frequencies (~0.1 to 1.0 kHz). Hearing generalists are believed to comprise the majority of species. Hearing

"specialists" have unique anatomical features that afford them greater hearing sensitivity over a relatively wider range of low sound frequencies (~0.1 to 3.0 kHz). Recent data indicate that some fish have specializations that allow them to detect ultrasonic sounds (~20 to 80 kHz) although only at relatively high sound pressure levels.

Studies have shown that some fish can determine the range and direction of underwater sound at frequencies ranging from 0.1 to 1.0 kHz even in the presence of background noise. However, limited existing research on the effects of sound on fish hearing and behavior has determined that exposure to some very loud sounds, such as seismic air guns, can produce no effect, or result in a range of effects from temporary hearing loss to more lasting damage to the haircells of fishes' inner ears (Popper and Halvorsen 2007).

The potential effects of noise on marine species, including mammals, sea turtles, and fish, are determined by radiated sound power levels, sound propagation characteristics, and the auditory and behavioral sensitivity of the species themselves. For example, the dominant components of the "communication" calls of most marine mammals fall within the 20 Hz to 20 kHz range. Richardson et al. predicted that the radii of audibility for baleen whales for production platform noise would be approximately 1.5 miles (2.4 km) in nearshore waters and 1.2 miles (1.9 km) near the shelf break (1995). In 2002, Croll et al. determined that the mating songs of fin whales are projected at approximately 20 Hz; the authors hypothesized that low-frequency anthropogenic sound could potentially interfere with a fin whale's ability to find or respond to a mate (2002).

Aquatic Invasive Species

Statewide, researchers have now identified 607 introduced, or likely introduced, species in California's estuarine waters (DFG/OSPR 2002). As of 2006, more than 46 non-native species of marine plants and animals have been identified in the San Pedro Bay, while more than 250 non-native species had been found in the San Francisco Bay-Delta Estuary. In San Francisco Bay, the rate at which non-native, aquatic invasive species (AIS) are becoming established increased from an average of one new species every 55 weeks prior to 1960, to one new species every 14 weeks between 1961 and 1995 (Cohen and Carlton 1998). AIS constitute a significant threat to biodiversity in the world's coastal waters because they often have no natural predators and may out-compete native species for food in their new environment. Once established, invasive species can cause major environmental and economic harm as they multiply and

spread. They can be very difficult, if not impossible, to control or eradicate following introduction into the receiving waters.

Some of the most problematic AIS that have become established in California include the European green crab, the Chinese mitten crab, the Asian overbite clam (*Corbula amurensis*), and a plethora of aquatic plants with origins as far away as Brazil and Japan. For example, within two years of its detection in San Francisco Bay in 1986, the Asian overbite clam had spread throughout the region's waterways. In shallow portions of the bay floor, the clam accounts for up to 95% of the living biomass (Nichols et al. 1990). It has contributed to a persistent decline in the availability of plankton in the Sacramento-San Joaquin River Delta (Jassby et al. 2002) which, in turn, may be a cause of observed declines in local fish populations (Feyrer et al. 2003). In contrast, rapid identification, an expedited process and cooperation among stakeholders, plus adequate funding and follow-up, all contributed to successful eradication of two infestations of *Caulerpa taxifolia* in southern California*. C. taxifolia* is a fast growing marine alga native to the warm waters of the Red, Indo-Pacific and Caribbean seas that gained notoriety in the 1980s for its colonization of the Mediterranean Sea.

Hull fouling and ballast water discharge are the leading causes of harmful AIS introductions to the marine environment (Thresher 1999, Hewitt 2002). Organisms such as mussels, seaweed, anemones and sea squirts with sedentary life stages can attach themselves to the hulls of commercial vessels or become entangled in nets, anchors, and other gear. Barnacles, other seaweeds and bryozoans may in turn attach to mussel shells and seaweed fronds, while more mobile species such as shrimps, worms and sea snails may hide in crannies created by larger fouling species (Takata et al. 2006). These organisms can survive for extended periods of time once secured to a vessel. Fouling organisms may then be transferred from the vessel to coastal waters and ports via spawning or egg release, detachment (simply dropping off into the water) or mechanical removal (via scraping, in-the-water cleaning or blasting in dry dock depending on clean up procedures).

4.3.3 Onshore Biological Resources

Much of the land surrounding the Santa Monica Bay is fully developed. Onshore biological resources potentially affected by the proposed Project consist primarily of the upland habitats in the immediate vicinity of the Marine Terminal and various wetland areas (Figure 4.3-2) scattered throughout the Bay.

Detailed onshore surveys on September 16 and 17, 2006, documented the presence of onshore biologically sensitive species or habitats in the vicinity of the Marine Terminal. A reconnaissance survey of the site was performed by walking the entire perimeter of the Marine Terminal and walking representative transects through accessible portions of the site. Inaccessible areas were examined to the maximum extent feasible with binoculars.

Upland and Dune Habitats

The onshore portion of the Marine Terminal and its surrounding environs are sited on the degraded remains of ancient sand dunes. Prior to 1824, the Los Angeles River discharged to the ocean at Playa del Rey rather than south of the Palos Verdes Peninsula as it does today. During this time, silt and sand carried to the sea by the river were deposited along the coast by a combination of littoral drift and wind, forming the El Segundo sand dunes. At their peak, these dunes encompassed approximately 4.5 square miles (11.6 km^2) (3,200 acres or 1,295 hectares), extending approximately one-half mile (0.8 km) inland from the Pacific Ocean from Westchester south to the base of the Palos Verdes Peninsula, and rising up to 125 feet (38.1 m) above sea level (Figure 4.3-6).

Although farming was established on the coastal prairie east of the dunes in the 1840s, the dunes themselves remained relatively undisturbed until the late 1880s when beach cities, from Redondo Beach to Venice, were established. The City of Redondo Beach separated the main dunes from south Redondo Beach and the Malaga Cove extensions, while the development of Venice eliminated the dunes north of the mouth of Ballona Creek. Construction of the Chevron oil Refinery in 1911, subsequent residential development, and the dredging and development of Marina del Rey lagoon into a pleasure craft harbor in the 1960s fragmented much of the rest of the original dune habitat. Today, approximately 338 acres (136.8 hectares) of this once extensive dune habitat persist, primarily at the western end of Los Angeles International Airport (LAX) (WRA 1990, Sapphos 2001).

Figure 4.3-6
El Segundo Sand Dunes and Upland Habitats circa 1930

Dune habitats support salt-tolerant plants such as sand verbena (*Abronia* spp.), silver beachweed (*Ambrosia chamissonis*), beach evening primrose (*Camissonia cheiranthifolia*), beach morning-glory (*Calystegia soldanella*), saltbush (*Atriplex* spp.), and saltgrass (*Distichlis spicata*). The federally endangered El Segundo blue butterfly (*Euphilotes battoides allyni*), which lives in intimate association with its host plant, the coast buckwheat (*Eriogonum parviflorum, also sometimes called the seacliff or dune buckwheat) (Emmel and Emmel 1973)*), persists in several of the remaining fragments of the El Segundo dunes (Figure 4.3-7). Globose dune beetles (*Coelus globosus*) and sandy beach tiger beetles (*Cicindela hirticollis gravid*), both California species of concern, are also supported by coastal dune habitats in the region.

Figure 4.3-7
Sensitive Resources Near the El Segundo Marine Terminal

In the immediate vicinity of the Marine Terminal, upland plant communities and wildlife habitats currently consist primarily of planted shrubs and trees inland of Vista del Mar. Most of the plants encountered during the biological surveys on September 18 and 19, 2006, are introduced species with ornamental purposes or that have become stabilized in the area; few plant species are native. Nevertheless, these plants still play an important role in providing shelter and foraging habitat for wildlife species in the area. Plant species observed included: iceplant (*Delosperma alba*), blackwood acacia (*Acacia melanoxylon*), Mexican fan palm (*Washingtonia robusta*), Russian thistle (*Salsola tragus*), common groundsel (*Senecio* sp.), and coast tarweed (*Madia sativa*). Although the CNDDB has recorded occurrences of special status species within a one mile (1.6 km) radius of the Project site, no special status plants were observed within the survey area during the surveys. A complete list of plant species observed during the surveys is included in Appendix D of this EIR.

Globose Dune Beetle

Globose dune beetles inhabit foredunes and sand hummocks immediately bordering the coast from Bodega Bay to Ensenada, Baja California. They are found on all of the Channel Islands except San Clemente Island. These beetles inhabit the sand beneath dune vegetation on which they depend for food. The dune beetle leaves a distinct labyrinthine track on the beach that is formed as the beetle walks below the sand, leaving a collapsed tunnel behind.

Sandy Beach Tiger Beetle

Sandy Tiger beetles are found in moist sand near the ocean, for example in swales behind dunes or upper beaches beyond normal high tides. Because they inhabit sandy shoreline areas that flood periodically, the larvae of this group of tiger beetles have physical and behavioral adaptations to avoid drowning. Additionally, unlike most other tiger beetles, they frequently relocate their burrows.

El Segundo Blue Butterfly

The El Segundo blue butterfly is a small subspecies of blue butterfly that almost exclusively inhabits dune areas that support its sole host plant, the coast buckwheat. The lifecycle of the El Segundo blue butterfly is entirely reliant on the coast buckwheat; adults eat nectar, mate, and lay eggs on the flowers, developing larvae feed on the flowers, and pupae develop in the soil directly beneath the host plants. Attempts to protect the El Segundo blue butterfly from extinction have centered primarily around protecting and propagating its host plant.

Following its initial discovery in 1975, the El Segundo blue butterfly was listed as endangered in 1976. The population continued to decline throughout the 1980s, until by 1998 the range of the El Segundo blue butterfly was restricted to just three locations: approximately 200 acres (80.9 hectares) of dune habitat at the west end of LAX, Chevron's 1.6-acre (6.5-hectare) butterfly preserve at the northwest corner of the Refinery (MBC 1993), and a small site at Malaga Cove on the Palos Verdes Peninsula (Figure 4.3-7). However, in 2007, observation indicated that a few hundred butterflies established themselves at Miramar Park in Torrance, where earlier dune habitat restoration efforts had successfully replaced invasive species with natives including *coast buckwheat*. This recolonization was considered important because the new site was more than 1,000 feet (304.8 m) from the nearest existing colony (Malaga Cove); previously the El Segundo blue butterfly was not known to be able to traverse such a distance. Later that year, small numbers of El Segundo blue butterfly were also observed at Dockweiler State Beach, approximately 200 feet (70.0 m) from the existing butterfly preserve at LAX.

In 2005, El Segundo blue butterflies were also identified at Vandenberg Air Force Base (VAFB) in western Santa Barbara County, north of their known historical habitat. Subsequent surveys in 2006 and 2007 confirmed their presence and expanded their known distribution at that site. Interestingly, the El Segundo blue butterflies at VAFB are found not only in coastal dune habitats but also on slopes and rocky areas occupied by coast buckwheat, suggesting that they may be more adaptable than previously believed. Currently, the El Segundo blue butterfly population is estimated at approximately 65,000 individuals.

Palos Verdes Blue Butterfly

The Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*) is one of 11 subspecies of the Silvery Blue butterfly (*Glaucopsyche lygdamus*) whose historic range probably extended over much of the Palos Verdes peninsula. Development of its dune habitat led to an endangered listing in 1980. By 1983 it was thought to be extinct; however, during a 1994 biological survey specimens were documented at the southern end of the Palos Verdes Peninsula, on the grounds of the Navy's Defense Fuel Support Center in San Pedro. At that time, the total count in the wild was estimated at approximately 214 individuals, making it what many consider to be the world’s rarest butterfly. Despite successful captive rearing of the Palos Verdes blue butterfly since its rediscovery, the wild population has not grown substantially. In 1999, the count increased to 646 individuals, but then dropped to 411 adults in 2000 (Mattoni and

Powers 2000). The population has continued to fluctuate over the intervening years, with the wild population in 2007 approximately 220 individuals. The Palos Verdes blue butterfly is dependent on two known host plants, locoweed (*Astragalus trichopodus var. lonchus*, also known as Santa Barbara milkvetch) and common deerweed (*Lotus scoparius*). It has a single adult flight period from late January through mid-April. Since the nearest colony is south of the Project site on the Palos Verdes peninsula, this species is not expected to be impacted by the proposed Project.

Wetland Communities

Wetlands, estuaries, and stream habitats are considered Environmentally Sensitive Habitat Areas (ESHA). The California Coastal Act defines ESHA as areas in which plant and animal life or their habitats are either rare or especially valuable because of their special nature or role in the ecosystem and could be easily disturbed or degraded by human activities or development.

Wetlands provide feeding, breeding, and nursery habitat for fish, waterbirds, and other wildlife, in addition to their other functions. Organisms inhabiting wetlands vary from marine and estuarine to freshwater, depending of the degree of tidal influence and individual salinity tolerances. For example, fishes move upstream or downstream in tidally influenced wetlands depending upon salinity fluctuations and the salinity tolerance of each species present. Upstream wetlands beyond the zone of seawater influence are populated entirely by freshwater and terrestrial organisms. As a result of fine sediments and high organic content, wetlands support abundant bacteria (Pollock 1971). For the same reasons, oxygen concentrations in the sediment decrease rapidly with depth and reach zero within a few inches of the surface. Anaerobic bacteria in these zones produce hydrogen sulfide. Large numbers of resident and migrating wading and diving birds utilize wetland habitats and the adjacent water bodies for nesting, foraging, roosting, and hiding from predators.

Figures 4.3-2, 4.3-6, and Table 4.3-8 identify important wetland resources along the coast of the Santa Monica Bay. These wetlands range from small, seasonally inundated river mouths, such as that at Zuma Beach, to the more extensive tidally influenced Malibu Lagoon and the Ballona Wetlands Complex at Marina del Rey (Figure 4.3-2). All of the Santa Monica Bay wetlands have been considerably impacted by development and habitat loss, and they exhibit decreased biological diversity and productivity, despite ongoing restoration efforts at several locations.

Wetlands provide habitat for endangered and threatened seabirds, shorebirds, and fish. The California brown pelican (Federal and state endangered, state fully protected), western snowy plover (Federal threatened), and California least tern (Federal and state endangered, state fully protected) are frequent visitors to these wetlands. Other species residing within wetlands, or dependent on the vegetation include the wandering skipper, Belding's savannah sparrow, and the light-footed clapper rail. Species found on the mudflats or salt pans include western snowy plover, long-billed curlew, and various insects.

Table 4.3-8
Wetlands of the Santa Monica Bay

Wetland [1]	Size, Acres (Hectares)	Sensitive Species [2]	Tidal Influence
Ballona Wetlands Complex	70 (28)	California brown pelican, western snowy plover, Belding's savannah sparrow, tidewater goby White-tailed kite	Year-round
Malibu Lagoon	31 (12.5)	California brown pelican, California least tern, western snowy plover, salt marsh bird's beak, tidewater goby, southern steelhead, willow flycatcher	Seasonal
Zuma Lagoon	6 (2.4)		Freshwater
Topanga Lagoon	2 (0.8)	California brown pelican, western snowy plover, Belding's savannah sparrow, tidewater goby, southern steelhead	Seasonal
Trancas Lagoon	2 (0.8)	NA	Restricted

[1] Estuarine wetlands that experience some tidal exchange during the year.
[2] Species that are listed as Federal or state endangered or threatened.
Source: California Coastal Conservancy 2005a, 2005b.

Ballona Wetlands Complex

The Ballona Creek watershed, approximately 130 square miles (336.7 square km), is the largest watershed that drains into Santa Monica Bay. At the watershed's terminus at the mouth of Ballona Creek lie the remnants of an extensive wetland that originally occupied more than 2,000 acres (809.4 hectares). Today, however, the Ballona Wetlands are best treated as a conglomeration of interconnected habitat areas including: the salt marsh, saltpans, and grassland of the main wetlands to the south of Ballona Creek; areas of restored dune habitat at the far western edge of the wetlands; Del Rey and Ballona lagoons; Ballona Creek and the Marina del Rey harbor; the Venice Canals; the Westchester Bluffs; and the Oxford Flood Control Channel (MBC 1993,

Schreiber 1981) (Figure 4.3-2). Although the wetlands have been altered significantly over time, they continue to provide habitat for myriad species, including several threatened and endangered species such as least terns, western snowy plover, and tidewater goby.

Many marsh plant species that typify the pristine salt marsh environments of southern California are absent from the Ballona Wetlands, possibly because of restricted water flow between the marsh and Ballona Creek proper (Gustafson 1981). Related factors (stagnation, salinity, and temperature fluctuations) have kept species density in the marsh low. The salt marsh lacks a low and middle marsh flora, which reduces the breeding, nursery, and foraging areas for fishes, birds, and reptiles.

Pickleweed is the dominant salt marsh plant; topographically, it occurs lower than in other southern California salt marshes having greater tidal influence. The subtidal substrate in Basin D of Marina del Rey supports eelgrass beds while sea lettuce occurs on mudflats (Stephens et al. 1991). Upstream, the marsh grades into freshwater plant communities that include willows (*Salix* spp.) (Gustafson 1981). The higher areas of the Ballona Wetlands, including the adjacent sandy coastal strand and disturbed land, contain 23 terrestrial plant species (Bakus 1975, Ford and Collier 1976). Seventeen species of mammals are known to live in the wetlands complex and at least 21 more have either occurred there in the past or forage in the area. Mammal species are dominated by small carnivores, including rodents, rabbits, and the introduced red fox (*Vulpes vulpes*) (Friesen et al. 1981).

Nine resident fish species and a number of transient species occur in the wetlands, primarily in Ballona Lagoon, a 16.3-acre (6.6.-hectare) natural saltwater estuary connecting the ocean to the Grand Canal, the main channel of the Venice Canals. Dominant species within the lagoon are the arrow goby (*Clevelandia ios*), which lives commensally in burrows of other organisms in the lower intertidal zone; the mosquitofish (*Gambusia affinis*), a freshwater species commonly introduced to control mosquitoes; and topsmelt, a pelagic marine species that moves in and out with the tides (Swift and Frantz 1981).

Numerous terrestrial birds, shorebirds, and water fowl are found in the Ballona Wetlands Complex and Malibu Lagoon. Two endangered species live or breed in Ballona Wetlands: Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) and the California least tern. Belding's savannah sparrow is a year-round resident that forages and nests in pickleweed, while the least tern is present only during spring and

summer, feeding in the shallow waters and nesting at nearby Dockweiler Beach (Dock and Schreiber 1981, Atwood and Minsky 1983). In the past, the endangered light-footed clapper rail (*Rallus longirostris levipes*) (LFCRRT 1983) and the threatened western snowy plover also inhabited the wetlands. Osprey are also occasionally sighted in the area, including one observed flying over the Marine Terminal beach area and at the Ballona Wetlands during the September 2006 biological surveys.

Malibu Lagoon

Malibu Lagoon is a shallow, 13-acre (5.3-hectare) brackish embayment, just downcoast of Malibu Point, that is normally open to the ocean only during the winter rainy season (MBC 1993). It lies at the terminus of the Malibu Creek Watershed, the second largest watershed that drains into Santa Monica Bay. Since the early 1900s, increased human activity has degraded the lagoon and the surrounding wetland ecosystem. During the 1950s and 1960s, the lagoon was used as a dump site for fill material, while continued urbanization upstream, including channelization of much of the creek, has both increased the overall volume of water entering the lagoon and substantially diminished the quality of that water.

However, in 1983 the DPR initiated restoration of the lagoon and wetlands. The restoration involved excavating a series of three channels with sloping mudflats to help reintroduce tidal flow. The channels were seeded with salt marsh plant species. Further restoration efforts during the 1990s included the successful reintroduction of the tidewater goby and additional revegetation, including extensive removal of nonnative species. Despite these restoration efforts, the ecosystem of Malibu Lagoon remains substantially degraded

There is a small pickleweed marsh at Malibu Lagoon, but this wetland differs from the Ballona Wetlands Complex in that riparian woodland, with cottonwood (*Populus* spp.) and alder (*Alnus* spp.) trees, and chaparral are found upstream (Dock and Schreiber 1981).

Topanga, Trancas, and Zuma Wetlands

Trancas Lagoon, Zuma Beach, and lower Topanga Canyon are less saline than either the Ballona or Malibu lagoons, and they support a limited number of plant species. However, their contributing creeks support a variety of riparian woodland species.

Zuma wetlands consist of a small, six-acre (2.4-hectare) freshwater marsh and creek just north of Point Dume. The wetlands historically served as a wildlife corridor and

nesting site for a variety of birds and small mammals; however, by the early 1990s they were substantially filled in. Restoration efforts in the late 1990s created a restored wetland with a highly diverse wildlife component, particularly with regard to bird life. Shortly after initial restoration efforts, more than 110 bird species were recorded during a one-year monitoring period.

Topanga and Trancas Lagoons were likewise heavily impacted by fill and construction in previous years. Once a 15-acre (6.1 hectare) thriving wetland, Topanga Lagoon merely occupies two acres (0.8 hectares) today, primarily due to road construction for the Pacific Coast Highway and residential development. Trancas has similarly been greatly reduced and degraded through construction and development.

Eelgrass

Eelgrass (*Zostera marina*) is a marine seagrass typically found in protected bays and estuaries from the low intertidal to a depth of approximately 65 feet (19.8 m). Limited eelgrass beds have also been documented in fairly protected nearshore environments.

Eelgrass beds function as an important structural element in the marine environment, dampening wave and current action, trapping suspended particulates, and reducing erosion by stabilizing the sediment. In addition, they provide essential habitat for a variety of marine organisms.

Eelgrass beds provide the greatest amount of primary production of any nearshore marine ecosystem, forming the base of detrital-based food webs, as well as providing a food source for organisms that feed directly on eelgrass leaves, such as migrating waterfowl. Eelgrass is also a source of secondary production, supporting epiphytic plants, animals, and microbial organisms that in turn are grazed upon by other invertebrates, larval and juvenile fish, and birds. Additionally, eelgrass beds function as nursery areas for many commercially and recreationally important finfish and shellfish species.

The current distribution of eelgrass in Santa Monica Bay is limited to small patches at Mother's Beach at the northern end of Marina del Rey and in King Harbor, as well as several areas associated with semi-protected habitats in the northern portion of the Bay at Pepperdine, Latigo Point, and Escondido (Chesney 2005, Stephens et al. ca. 1990). There are no confirmed observations of eelgrass at Palos Verdes or along the non-protected habitats of the central portion of the Bay.

Wetlands along the shoreline would not be directly affected by routine Project activities but could potentially be affected by a major oil spill, especially if a spill occurred when the wetlands were open to incoming tides or wind-driven waves.

Shorebirds and Waterfowl

As with seabirds, the abundance of shorebirds and other waterfowl in the Project area is highly seasonal due to its location along the Pacific Flyway, a major north-south route of travel for migratory birds that extends from Alaska to Patagonia. Bird diversity and abundance in the Project area are generally highest during the winter months, when the presence of migratory species augments resident species and populations, and lowest during the summer. Although only a few bird species nest along the shores of the Santa Monica Bay, many species use the area as either a stop-over during migrations or for foraging.

The extensive sandy beach habitats found throughout much of the Bay provide foraging and nesting habitat for several species of shorebirds including the California least tern, the western snowy plover (*Charadrius alexandrinus nivosus*), willets (*Catoptrophorus semipalmatus*), wimbrels (*Numenius phaeopus*), marbled godwits (*Limosa fedoa*), and sanderlings (*Calidris alba*). Spotted sandpipers (*Actitis macularia*), willets, ruddy turnstones, black turnstones (*Arenaria melanocephala*), surfbirds (*Aphriza virgata*), wandering tattlers (*Heteroscelus incanus*), black oystercatchers (*Haematopus bachmani*), western gulls (*Larus occidentalis*), and Heermann's gulls (*L. heermanni*) are also known to forage in the intertidal and nearshore areas (Jaeger and Smith 1966, MBC 1985).

Least terns are generally only present in the area during nesting and fledging season, while western snowy plovers and willets are present on local beaches throughout the year. Wimbrels, marbled godwits, and sanderlings appear along southern California beaches during the winter months, and ruddy turnstones visit the region during their spring and fall migrations (Garrett and Dunn 1981).

Specific bird species observed at the Marine Terminal during biological surveys on September 18 and 19, 2006, included a brown pelican, gulls, sanderlings, willets, house finches (*Carpodacus mexicanus*), osprey (*Pandion haliaetus*), rock doves (*Columba livia*), American crows (*Curvus brachyrhynchos*), American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and brewers blackbird (*Euphagus cyanocephalus*). A complete list of wildlife and plant species observed during the surveys is included in

Appendix D. Additionally, the CNDDB and other literature were consulted for recorded and potential occurrences of special status species.

4.3.4 Rare, Endangered, and Special Status Species

Species are considered endangered if in imminent danger of extinction, or threatened if they are likely to be in danger soon, and are, therefore, given special protection under the provisions of the FESA and California Endangered Species Act (California ESA). Table 4.3-9 summarizes the Federal and State endangered, threatened, and special status species known to occur in the Santa Monica Bay area. Discussion of invertebrates, reptiles, seabirds, and mammals are provided in previous sections of the environmental setting.

Table 4.3-9
Endangered, Threatened, and Special Status Species in Santa Monica Bay

Common Name	Scientific Name	Status
Plants		
Beach spectacle-pod	*Dythyrea maritima*	ST
Coastal dunes milk-vetch	*Astragalus tener* var. *titi*	FE, SE
Salt marsh bird's-beak	*Cordylanthus maritimus* ssp. *maritimus*	FE, SE
Invertebrates		
Abalone, black	*Haliotis cracheirodii*	FE
Abalone, green	*Haliotis fulgens*	FSC
Abalone, pink	*Haliotis corrugate*	FSC
Abalone, white	*Haliotis sorenseni*	FE
El Segundo blue butterfly	*Euphilotes battoides allyni*	FE
Palos Verdes blue butterfly	*Glaucopsyche lygdamus palosverdesensis*	FE
Globose Dune beetle	*Coelus globosus*	SSC
Sandy beach tiger beetle	*Cicindela hirticollis gravida*	SSC
Reptiles		
Green turtle	*Chelonia mydas*	FE/T
Leatherback turtle	*Dermochelys coriacea*	FE
Loggerhead turtle	*Caretta caretta*	FT
Olive ridley turtle	*Lepidochelys olivacea*	FE/T
Fishes		
Southern steelhead	*Oncorhynchus mykiss*	FE, SSC
Tidewater goby	*Eucyclogobius newberryi*	FE, SSC
Birds		
Belding's Savannah Sparrow	*Passerculus sandwichensis beldingi*	SE

Common Name	Scientific Name	Status
California black rail	*Laterallus jamaicensis coturniculus*	BCC, ST/FP
California brown pelican	*Pelecanus occidentalis californicus*	FP
California gull	*Larus californicus*	SSC
California least tern	*Sterna antillarum browni*	FE, SE/FP
Common loon	*Gavia immer*	SSC
Double-crested cormorant	*Phalacrocorax auritus*	SSC
Elegant tern	*Sterna elegans*	BCC, SSC
Light-footed clapper rail	*Rallus longirostris levipes*	FE, SE/FP
Long-billed curlew	*Numenius americanus*	BCC, SSC
Western snowy plover	*Charadrius alexandrinus nivosus*	FE, SSC
Xantus' murrelet	*Synthliboramphus hypoleucus*	FC, ST
Mammals		
Blue whale	*Balaenoptera musculus*	FE
Fin whale	*Balaenoptera physalus*	FE
Humpback whale	*Megaptera novaeangliae*	FE
North Pacific Right whale	*Eubalaena japonica*	FE
Sei whale	*Balaenoptera borealis*	FE

F = Federal. FP = Fully Protected.
S = State (California). T = Threatened.
C = Candidate. SC = Species of Concern.
E = Endangered. R = Rare BCC= Bird of Conservation Concern.
Source: USFWS 2006, CDFG 2006, CNDDB 2006

Plants

Beach Spectacle-Pod

Beach spectacle-pod (*Dythyrea maritima)* is a low growing, whitish-flowered perennial herb in the mustard family (Brassicaceae). The seed pods have two side-by-side sections, each surrounded by a rim, which gives it the appearance of a pair of spectacles. It is found in small transverse foredunes within approximately 165 to 985 feet (50 to 300 m) of the surf. Beach spectacle-pod is usually found in areas of these fragile dunes where the sand is relatively unstable. This species historically ranged as far south as Los Angeles County and possibly Baja California Norte, Mexico.

Although historically present in the El Segundo dunes and Ballona Wetlands, much of the potentially suitable habitat for the beach spectacle-pod within the region was converted due to residential development between 1940 and 1974. This species has not been successfully reintroduced despite revegetation efforts between 1990 and 1994, and it is considered locally extinct.

Coastal Dunes Milk-Vetch

Coastal dunes milk-vetch (*Astragalus tener* var. *titi*) is a low, dwarf annual plant in the pea family (Fabaceae). This plant grows in moist depressions on clay soils in coastal terrace grasslands and in coastal strand vegetation on sand dunes. Historically, the range of the coastal dunes milk-vetch was known to include Monterey, Los Angeles, and San Diego Counties; however, it is now presumed extant at only three locations, one in Monterey County and two in San Diego County.

Salt Marsh Bird's-Beak

Salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*) is a low-growing, gray-green annual with pale, two-lipped (bird's beak) flowers in the snapdragon family (*Scrophulariaceae*) that historically occurred in wetlands along the northern part of Santa Monica Bay. Both the state and Federal government listed it as endangered in 1978 because of population declines due to loss of habitat from development (CNPS 1994). The species is also threatened by foot traffic, non-native and introduced plants, altered hydrology, and cattle grazing and trampling (CNPS 1994). It is restricted to coastal salt marshes. In other coastal wetlands of southern and Baja California, it occurs at the landward edge of the salt marsh, where it is frequently disturbed. Introduced species often threaten to invade its habitat, but displacements have not been documented (Zedler 1991). This plant has suffered major population declines in all California coastal wetlands and no longer occurs at any of the wetlands along Santa Monica Bay.

Fishes

Southern Steelhead

Steelhead (*Oncorhynchus mykiss*) are the migratory, ocean-going form of rainbow trout. In 1997, the distinct population segment of steelhead that resides in the Southern California Evolutionarily Significant Unit (ESU), which extends from the Santa Maria River south to Malibu Creek, was listed as an endangered species (NMFS 1999). The NMFS extended the ESU south to the Mexican border after confirming steelhead inhabitation in San Mateo Creek in 2002. The nearest critical habitat for the southern steelhead currently exists within the Santa Clara river watershed in Ventura County.

Steelhead spawn in freshwater coastal streams, but they spend their adult lives in the ocean where they may migrate extensively (Eschmeyer and Herald 1983). Only winter-run steelhead occur along the California coast. Adult steelhead enter creeks in the

winter, usually after the first substantial rainfall (generally November to April), and move upstream to suitable spawning areas (Moore 1980). Spawning usually occurs from March to early May, generally in riffle areas or the tails of pools that contain clean, coarse gravel (NMFS 1999). In February 2000, most south coast streams and estuarine areas below impassable manmade barriers were listed as critical habitat for steelhead.

Juvenile steelhead will remain in fresh water for an average of two years before migrating to the ocean (NMFS 1997, Titus et al. 1994). Downstream movement of adults after spawning and juveniles migrating to the ocean usually occurs from March through July. Photoperiod, stream flow, and temperature appear to influence emigration timing (Bjornn and Reiser 1991, Holubetz and Leth 1997). Juvenile steelhead may spend several weeks in the coastal lagoon or estuary of a stream before entering the ocean. They reside in the ocean for 2 to 3 years before returning to their natal stream to spawn (NMFS 1997), although in wet years steelhead may return to spawn after only one year in the ocean (Moyle et al. 1995). The adults can spawn more than once, although most do not spawn more than twice (NMFS 1997).

Optimal habitat for steelhead throughout its Pacific Coast range is generally characterized by clear, cool water with abundant instream cover, well-vegetated stream banks, relatively stable water flow, and a 50:50 pool-to-riffle ratio (Raleigh et al. 1984). Pool-to-riffle ratios between 40:60 and 60:40 are generally thought to provide the most productive habitat for steelhead (WESCO 1987). Although optimal water temperatures for steelhead are considered to range from 12 to 20 degrees Celsius (ºC), various sources document southern steelhead as persisting in streams with water temperatures ranging from 14.4 to 25.5ºC during the summer and early fall months of drought years (WESCO 1987, Titus et al. 1994). The Critical Thermal Maximum is reported to be as high as 29.4ºC (Lee and Rinne 1980).

The presence of a well-developed riparian corridor along the stream course is considered an essential component in southern steelhead streams. This plant community inhibits substantial erosion of stream banks during high flows, maintains lower stream temperatures, and provides organic input to the stream (Faber et al. 1989). Good rearing habitat contains low current velocities (e.g., behind boulders or other velocity barriers) and good cover (e.g., undercut banks, logs or brush, surface turbulence). Cobble embeddedness (amount of sediment surrounding rocky substrate) can be used as a measure of shelter availability for aquatic insects (food for fish) and young fish. At an embeddedness of above 35 percent, rearing habitat quality decreases substantially

(WESCO 1987). Embeddedness can also be used to indirectly evaluate habitat suitability for incubation of fish eggs and for salmonid overwintering.

Stream flow within the southern extent of the southern steelhead's range varies seasonally and annually. In central and southern California coastal drainages, droughts of one or more years can cause intermittent stream flow in late summer and fall with reductions in pool depths, thereby reducing the quality and quantity of available habitat. Although southern steelhead are capable of withstanding substantial seasonal and annual fluctuations in stream flow and other physical conditions, prolonged drought can periodically result in mortality to juvenile fish inhabiting a stream (Moore 1980).

In Santa Monica Bay, steelhead are known or presumed to utilize several drainages that exist along the northwestern portion of the Bay. These include Arroyo Sequit at Leo Carrillo State Beach, Malibu Lagoon and Creek, and Topanga Creek, approximately 4 miles (6.4 km) northwest of Santa Monica State Beach. Until the rediscovery of steelhead in San Mateo and San Juan Creeks, Malibu Creek was the southernmost documented run of steelhead on the Pacific Coast.

Tidewater Goby

The tidewater goby (*Eucyclogobius newberryi*) was federally listed as endangered on February 4, 1994 and is a state-designated Species of Special Concern (USFWS 1994b; CDFG 2000). A proposed rule to delist the species, except in Orange and San Diego Counties, was published on June 24, 1999 and retracted in 2002 (USFWS 1999b). Critical habitat was originally designated for 10 areas in Orange and San Diego Counties on November 20, 2000, but was redesignated in January 2008 to include approximately 10,003 acres (4,048.1 hectares) of habitat (USFWS 2000c). A recovery plan for this species was published on December 7, 2005, and a 5-year status review was completed in 2007 (USFWS 2007).

Tidewater gobies are small, usually less than 2 inches (5.1 centimeters [cm]) long, with large pectoral fins and fused pelvic fins that form a sucker-like disk. They reside in brackish-water habitats throughout coastal California (MBC 2003c, CNDDB 2005). This is the only goby species along the coast of California that is restricted to low salinity (less than 10 parts per thousand [ppt]) waters. All life stages are completed in these waters (i.e., no marine life history phase occurs), although the fish can live in waters with a salinity over 40 ppt (Swift et al. 1989, USFWS 2005b). This limits the frequency of genetic exchange between populations and lowers the potential for recolonization of

a habitat once a population is lost. Recolonization, however, has been documented at distances up to 12.4 miles (20 km) from a source population (Lafferty et al. 1996).

Tidewater gobies are benthic (living on the bottom substrate) and feed on small aquatic invertebrates and insect larvae. This species inhabits coastal streams within 2 miles (3.2 km) of the ocean and shallow waters (less than three feet [0.9 m] deep) that are slow moving to still but not stagnant (Irwin and Soltz 1984, USFWS 2005b).

The coastal lagoons where these fish reside are typically closed off from the ocean by sand bars during summer. The substrate is generally sand and mud with abundant emergent and submerged vegetation (Moyle 1976). In addition to living in coastal lagoons, these fish can also move upstream at least 5 miles (8 km), as documented in San Antonio Creek, Santa Barbara County (Irwin and Soltz 1984). Because they remain in lagoons and stream mouths but do not particularly venture to sea, the frequency of genetic exchange between individual populations is low. Recolonization, however, has been documented to occur up to 12.4 miles (20 km) from a source population (Lafferty et al. 1996).

Spawning in southern California takes place primarily from late April to July, when males dig a vertical burrow approximately 3.9 to 7.8 inches (0.1 to 0.2 m) into clean, coarse sand for nesting. The eggs are attached to the walls of the burrow by the female and are guarded by the male until they hatch in nine to 10 days. Larval gobies are pelagic and found around vegetation for a short time and then become benthic (Swift et al. 1989). The life span of a tidewater goby is generally only one year, although individuals in the northern range may live to three years (Lee et al. 1980). The short life span makes this species highly sensitive to adverse environmental conditions during the breeding season (USFWS 2005b).

This species formerly inhabited lower stream reaches, coastal lagoons, marshes, and tributaries with tidal influence from the Smith River in Del Norte County to Agua Hedionda Lagoon in San Diego County (Lee et al. 1980). Its present distribution extends southward only to the mouth of San Onofre Creek in San Diego County. A reassessment of tidewater goby populations indicates that 85 of approximately 110 historical populations remain (USFWS 1999b). The remaining tidewater gobies in Orange and San Diego Counties are on the U.S. Marine Corps Base at Camp Pendleton.

The tidewater goby is known to occur in several nearby wetland areas within the Santa Monica Bay, including the Ballona Wetlands Complex. Tidewater goby also naturally

occurred in Malibu Creek and Lagoon until the early 1960s, but were later extirpated. However in 1991, 52 adults from the Ventura River were successfully reintroduced into Malibu Lagoon (Swift et al. 1993, CNDDB 2005). By 1998, approximately 1,500 gobies inhabited the waters of the lagoon.

Birds

Belding's Savannah Sparrow

The Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) was state-listed as endangered under the California ESA on January 10, 1974. Development along southern California's coastline has eliminated much of this species' habitat. In 1986, only approximately 2,274 pairs of Belding's savannah sparrows were found in 27 California marsh areas. By 1991, the California population had dropped to an estimated 2,000 breeding pairs (Crabtree and Thelander 1994). Two-thirds of the marshes inhabited by the Belding's savannah sparrow are privately owned. However, approximately 45 percent of the individuals are located on U.S. Navy lands and in the Tijuana Estuary National Wildlife Refuge (Steinhart 1990).

Savannah sparrows have a yellow or whitish throat and eyebrow, a pale crown stripe, and dark whisker stripe. Their upperparts are streaked and their tail is characteristically short. This subspecies is dark and heavily streaked in comparison to other savannah sparrow subspecies. Belding's savannah sparrows feed on sand flies and insects found on mudflats, beaches and coastal vegetation. Wintering habitat may include upland habitats.

Belding's savannah sparrows are a non-migratory subspecies inhabiting coastal salt marshes from Santa Barbara County south into Baja California (Bahia de San Quintin), Mexico. They are one of the few bird species that resides year-round in the salt marsh, depending entirely on this ecosystem for nesting and foraging. They show a particular affinity for the upper littoral region of the marsh, preferentially nesting in pickleweed (Massey 1973, Zedler 1982). This species nests in pickleweed just above the high tide line. Nesting has also been observed in salt grass.

The breeding season ranges from February through September, with nesting usually from mid-March through early July. A concealed cup nest is constructed, usually with its rim flush to the ground. Pairs may have multiple clutches in a breeding season. Adverse impacts to this species include filling, dredging, and development of wetlands, loss of regular tidal connection with the ocean, and inconsistent tidal influence on upper

marsh habitat. Ongoing concerns are flooding or other disruptions in the natural drainage of coastal wetlands because of upstream development or flood control; human disturbance, including trampling of marsh vegetation; and impact of exotic predators in marshes, especially domestic cats and non-native red foxes.

Between 1973 and 1987, the population was fairly stable, with 23 to 39 breeding pairs in the Ballona Wetlands area each year (Table 4.3-10). Territorial males were observed on Playa del Rey and Ballona salt flats between 1973 and 1991, although there are no records of fledglings during that time (MBC 1993). Beginning in 1990, the number of pairs started to decline, partly due to predation by introduced red foxes (MBC 1993). Surveys in 2004 and 2005 indicate that 12 and 11 pairs respectively, inhabited the Ballona Wetlands (PWA 2006).

Table 4.3-10
Number of Breeding Pairs of Belding's Savannah Sparrow in the Ballona Wetlands
1973-2005

Year	Breeding Pairs	Area
1973	23[a,b]	Playa Del Rey
1977	27[a,b]	Playa Del Rey
1979	39[c]	Ballona
1980	28[c]	Ballona
1981	23-26[c]	Ballona
1986	23[a,d]	Playa Del Rey
1987	39[e]	Ballona
1990	12[e]	Ballona
1991	5[e]	Ballona
1996	37[f]	Playa Del Rey
2001	13[f]	Playa Del Rey
2004	12[g]	Ballona
2005	11[g]	Ballona

[a] Based on sightings of territorial males.
[b] Massey 1979
[c] Dock and Schreiber 1981
[d] Zembal 1988
[e] Jurek 1992 (based on USFWS data)
[f] Zembal and Hoffman 2002
[g] PWA 2006

The number of breeding pairs in the area may also be affected by changing habitat conditions, such as increased amounts of standing water during flooding and, in the case of a dredge spoil nesting site, a reduction in the quality and quantity of pickleweed habitat (Dock and Schreiber 1981). During construction of Marina del Rey, dredge-

spoils were placed on the northern parcel of the Ballona Wetlands, temporarily increasing the amount of suitable nesting habitat for Belding's savannah sparrows. However, because of the long active-breeding season and the sparrow's sensitivity to disturbance, human activity in this high marsh habitat may cause both habitat degradation and reproductive failure (Zedler 1982).

California Black Rail

The California black rail (*Laterallus jamaicensis coturniculus*) is an extremely secretive, tiny, short-legged marsh bird. There are only two reported historical sightings of this bird from the nearby Ballona Wetlands, most recently in 1928. The black rail is currently thought to be extirpated in the area. Black rails inhabit both freshwater and saltwater wetlands, but they generally avoid habitats affected by daily tidal action, preferring areas that do not flood regularly. The current absence of the black rail at the Ballona Wetlands may be a result of a lack of suitable nesting habitat (Massey and Zembal 1979). Although it will nest in upper marsh areas, especially following flooding of lower marsh habitat, such habitat is generally lacking at the Ballona Wetlands. The primary threats to the black rail include habitat loss, predation, and contamination. Predators of the black rail include great blue herons, great egrets, northern harriers, short-eared owls, domestic cats, and foxes. Habitat loss has drastically reduced the amount of suitable land available to this species.

California Least Tern

The California least tern (*Sterna antillarum browni*) is a summer visitor that breeds in southern California coastal habitat from late April to September. It builds nests in shallow depressions in hard or soft dirt, dried mud, or sandy areas, usually on beaches or islands cleared of vegetation. Least terns utilize the open waters of Ballona Creek and, to a lesser extent, Ballona Lagoon and the Venice Canals to forage for small fishes (CLTRT 1980). A protected nesting area is on North Dockweiler State Beach near Marina del Rey.

The California least tern was federally-listed as endangered in 1970 and state-listed as endangered in 1971. This migratory shorebird species is found along the Pacific Coast of California, from San Francisco southward to Baja California. Historically, the California least tern nested in small aggregations scattered among sandy beaches and salt flats all along the coast (Keane 1999). However, habitat loss in the early 1900s caused a drastic reduction in both breeding sites and breeding pairs. By the 1940s, the California least tern disappeared from Los Angeles and Orange Counties (Keane 1999).

When listed in 1970, only 225 least tern nesting pairs occurred in California. Despite a lack of critical habitat designation for this species, implementing active predator control programs, in conjunction with protecting nest beaches from development, degradation, and disturbance, has created a relatively steady population increase. In 1976, 23 nesting sites held 663 nesting pairs, while by 1997 38 sites held more than 4,000 nesting pairs (Keane 1999). In 2007, nesting pairs were estimated to number between 6,744 and 6,989 (Marshalek 2008).

The California least tern generally arrives at nesting areas along the southern California coast in mid-April to early May and remains there until September (USFWS 1980). Pair bonds may form before or immediately upon arrival with well-defined courtship patterns. Nests consist of shallow depressions in undisturbed open sand, dirt, or dry mud close to estuaries or a dependable food supply. California least terns are colonial and create loose aggregations of nests with nests approximately 10 feet (3 m) apart. One to four eggs are laid during each breeding season.

The California least tern feeds primarily in shallow estuaries, lagoons, and nearshore ocean waters less than 60 feet (18.3 m) deep (CDFG 1983, USFWS 1980.) These birds increase their use of freshwater systems during the post-breeding season (USFWS 1980). Within the general Project area, least terns forage in the nearshore waters of Santa Monica Bay, as well as Ballona Creek, Ballona Lagoon, and Marina del Rey. This species exclusively eats fish and feeds on more than 50 species of forage fish (USFWS 1980). Least terns preferentially feed on small schooling species such as topsmelt (*Atherinops affinis*), northern anchovy (*Engraulis mordax*), and jacksmelt (*Atherinopsis californiensis*). Surfperch, killifish, and mosquitofish are also eaten by terns (CLTRT 1980). Topsmelt, killifish, and mosquitofish are found in the tidal channels, creeks, and lagoons of the Ballona Wetlands, whereas northern anchovy and jacksmelt occur in nearshore marine waters of the Bay (MBC 1993).

Breeding success of least terns varies greatly due to predation, weather conditions, and food availability (Massey 1972, CLTRT 1980, Dock and Schreiber 1981). For example, increased predation by American crows caused a significant decline in breeding success in the mid-1990s. As nesting habitat and suitable feeding grounds have been lost and human disturbance has increased, terns have used alternative sites (CLTRT 1980, Dock and Schreiber 1981).

California least terns are known to have nested on the salt and mudflats at Playa del Rey since at least 1919, and small numbers remained there into the late 1970s.

Table 4.3-11
California Least Tern Breeding Data for Venice Beach, 1978-2008

Year	Breeding Pairs	Fledglings
1978	60-70	75
1979	80-95	140
1980	157	240
1981	150	195
1982	170	NA
1983	140	140
1984	83	94
1985	96	113
1986	104	113
1987	109	82
1988	165	192
1989	137	134
1990	206	279
1991	198	200
1992	229	245
1993-1999	NA	NA
2000	274-294	150-200
2001-2003	NA	NA
2004	17	0
2005	90	0
2006	276-328	208-325
2007	449-453	414-440
2008	460-698	296

NA = Data not available.
Sources: CDFG, unpublished data; Massey and Fancher 1989; Jurek 1992; Keane 2001; Patton 2002; Marschaleck 2004-2008

However, a program established in the early 1980s to protect least tern nesting grounds, including protective fencing and predator control on the north side of the entrance to Ballona Lagoon, at nearby Venice Beach (North Dockweiler State Beach), resulted in a preferential shift to that site. Since then, the Playa site has fallen into disuse, while the numbers of nesting pairs and fledglings at Venice Beach have tripled (Table 4.3-10). Nesting pairs at the site increased from less than 100 in the late 1970s, to more than 400 by 2007. Meanwhile, from 1978 through 1994 the site contributed more than 10 percent of the fledglings statewide. The area currently remains one of only two permanent California least tern nesting sites in Los Angeles County; the other site is south of the Palos Verdes Peninsula at the Port of Los Angeles (Pier 400).

Common Loon

The common loon (*Gavia immer*) is a California Species of Special Concern that breeds and nests in the northern U.S. and Canada, but not in California. The common loon is fairly common and is transient in marine subtidal and nearshore habitats along the coast of California during their wintering season, which extends from approximately September through May. The birds dive as deep as 193 feet (58.8 meters) for food. For the most part, they consume fish while in the wintering grounds.

Double-Crested Cormorant

The Double-crested cormorant (*Phalacrocorax auritus*) is a California Species of Special Concern. Double-crested cormorants are year-long residents of the California coast. Cormorants roost on offshore rocks, islands, cliffs, wharfs, and jetties where they dry out their plumage. This species feeds mainly on mid-water to bottom-dwelling fish (including rockfish), diving from the water's surface to pursue prey underwater. They forage principally in nearshore marine and estuarine waters less than 165 feet (50 m) deep and near nesting or roosting sites.

The breeding season is from January through September for this species of cormorant. Depending on latitude, eggs can be laid as early as February. Populations of double-crested cormorants declined throughout the 1900s and continue to decline in some colonies due to habitat loss, marine pollution, human disturbance, and introduced predators. Predators on eggs and young include crows, ravens, and western gulls. Human disturbance of breeding colonies is known to cause nest abandonment and increased predation of eggs and young by gulls.

Elegant Tern

The elegant tern (*Sterna elegans*) is both a Federal and state Species of Special Concern. Elegant terns are migratory, colonial nesting seabirds that arrive at a few breeding sites along the southern California coast in June and depart by October. The number of nesting colonies has increased along the coast, most likely due to colony protection and artificial nesting sites. The preferred habitats are inshore coastal waters, bays, estuaries, and harbors, but never inland. After the breeding season, birds may disperse along the entire California coast but most migrate as far south as South America. Elegant terns feed on fish by diving into shallow nearshore waters as well as estuaries, bays, and lagoons.

Light-Footed Clapper Rail

The light-footed clapper rail is a Federal and state-endangered species formerly found in the Ballona Wetlands. It is a year-round resident (non-migratory) of coastal salt marshes from Carpinteria marsh in Santa Barbara County south to Baja California. Clapper rails generally nest in cordgrass stands in the low marsh, but they may also nest in areas of pickleweed (Massey and Zembal 1979). Although it will nest in upper marsh areas, especially following flooding of lower marsh habitat, upper marsh is generally not present at the Ballona Wetlands. Light-footed clapper rails feed on the small fishes and crustaceans that inhabit tidal creeks; habitat loss has led to severe population declines in this species. The population as of 2006 consisted of just over 400 breeding pairs (Zembal et al. 2007). Only two sightings of this species have been documented in the Ballona Wetlands since 1950 (Cooper 2005). Currently the closest clapper rail populations to the Project area are in Mugu Lagoon in Ventura County and in Seal Beach in Orange County.

Long-Billed Curlew

The long-billed curlew (*Numenius americanus*) is the largest North American shorebird and a state Species of Special concern. Curlews generally gather in small flocks and forage by walking quickly while using their long, downward curving bills to probe the substrate along the waterline for large marine invertebrates. This species' breeding range includes much of the western U.S. and the southern portions of Canada's prairie provinces. Long-billed curlews occur in coastal marshes and mudflats in the Project area primarily during the winter season. The major threat to long-billed curlews is the degradation of their native grassland breeding habitat. However, many staging and wintering areas along the Pacific coast of the U.S. have been degraded or eliminated by development since 1800. Generally, two to five curlews utilize the Ballona Wetlands each winter season (Cooper 2005).

Western Snowy Plover

After a decade of substantial decline in adult bird numbers (approximately 11 percent), the USFWS listed the western snowy plover (*Charadrius alexandrinus nivosus*) as threatened on March 5, 1993 (USFWS 1993). By 1991, the number of adult birds on the Pacific Coast of the U.S. had dwindled to approximately 1,200 to 1,900 birds (Lafferty 2000). Critical habitat for this species was designated in 1999 and updated in 2005 (USFWS 1999a, 2005c). A recovery plan for the western snowy plover was finalized in 2007 (USFWS 2007).

Historically, western snowy plovers nested on the Malibu beaches and a stretch of beach between Santa Monica and Redondo Beach (Page and Stenzel 1981). Western snowy plovers nest on beaches and salt flats that have some vegetation, and they feed on mud flats in the wetlands. Recent western snowy plover use of beaches in the Project area by winter migrants has been observed, although nesting in the area has not been recorded since 1949 (Page et al. 1986). Nevertheless, critical habitat is designated for the species on a series of Pacific coastline beaches from Washington to Southern California, including an area of beach directly inshore of the Marine Terminal (Figure 4.3-6) (USFWS 2005c). Other nearby sites are Dockweiler Beach South and Hermosa Beach between 2nd and 6th Streets. The closest breeding colony to the Project site is Bolsa Chica in Orange County; other colonies are in Ventura County (Santa Clara river mouth, McGrath Lagoon, and Mugu Lagoon), Santa Barbara County (Coal Oil Point), and on several of the Channel Islands.

The western snowy plover breeds on the Pacific coast from southern Washington to southern Baja California, Mexico, and interior areas of Oregon, California, Nevada, Utah, New Mexico, Colorado, Kansas, Oklahoma, and north-central Texas, as well as coastal areas of Texas and possibly northeastern Mexico (Page et al. 1991). The Pacific coast population of the western snowy plover is genetically isolated from western snowy plovers breeding in the interior. The Pacific coast population nests adjacent to or near tidal waters, and includes all nesting colonies on the mainland coast, peninsulas, offshore islands, adjacent bays, and estuaries. The coastal population of the western snowy plover consists of both resident and migratory birds; some birds winter in the same areas used for breeding (USFWS 1993). Migratory coastal western snowy plovers travel either north or south within their coastal range.

The western snowy plover forages primarily on the wet sand at the beach-surf interface, hunting visually but also probing beneath the surface of the mud or sand. They feed on marine worms, small crustaceans, fish, and insects. Plovers nest in small colonies, in shallow depressions on undisturbed, flat areas with loose substrate, such as sandy beaches and dried mudflats along the California coast (Ehrlich et al. 1992). Normally, two to three eggs are laid, incubated by both sexes, and hatch in 25 to 30 days. Hatchlings fledge at about 31 days. The breeding season for this species can extend from mid-March through mid-September.

The decline in the western snowy plover population is attributed to human disturbance, predation, and loss of nesting habitat due to encroachment of introduced European beachgrass (*Ammophila arenaria*) and urban development (USFWS 1993).

Other Protected Species

Relatively speaking, the FESA only affords protection to a few species out of the many hundreds of species found within the southern California area. However, other provisions, such as the Migratory Bird Treaty, the Magnuson-Stevens Fishery Conservation and Management Act, and CDFG regulations, provide protection for many additional species. The following sections identify these provisions. Several of the key species they protect that are found within the Project area, and which could be impacted by the Project, are outlined below.

Osprey (*Pandion haliaetus*) is a widely distributed bird species that forages in large bodies of water. They have been threatened by DDT contamination, loss of breeding habitat, and shooting (Ehrlich et al. 1992). Although some conditions have improved, reduced nesting habitat and declining fish populations in some waters still causes concern.

American white pelicans (*Pelecanus erythrorhynchos*) winter along the central and southern coast of California. White pelicans may occur as individuals or in small flocks and feed in coastal estuaries, but they are generally not seen on the open ocean during the winter season (Ehrlich et al. 1992). The Migratory Bird Treaty Act protects this California Species of Special Concern.

Black-crowned night-heron (*Nycticorax nycticorax*) populations may be declining in some areas but appear to be stable in southern California. They forage for fish and aquatic invertebrates along the shallow margins of ponds and marshes and nest in some southern California wetlands (Ehrlich et al. 1992).

The great blue heron (*Ardea herodias*) is common in many freshwater and saltwater marshes. It feeds on fish and aquatic invertebrates. Great blue herons nest in localized sites, most of which have been disturbed or destroyed by unchecked development in coastal lowlands (Garrett and Dunn 1981).

Large-billed sparrow (*Passerculus sandwichensis rostratus*), a subspecies of savannah sparrow, historically was a winter visitor to the coastal wetlands of southern California but is now seldom seen since its population decline at breeding grounds within the delta wetlands of the Colorado River (Garrett and Dunn 1981).

4.3.5 Regulatory Setting

A variety of federal, state, and local laws and regulations govern biological resources in and around the Project area. This section discusses the relevance of these statutes to the proposed Project. In addition, quantitative guidelines, standards, limits, and restrictions promulgated in the regulations form the basis for many of the criteria used to evaluate the significance of the proposed Project's impacts to biological resources.

Federal

The USFWS and the NMFS are the Federal agencies directly responsible for protecting biological resources in the Santa Monica Bay, including its coastal estuaries and marshlands. The EPA is also concerned with protecting marine and estuarine life through water quality standards. The U.S. Coast Guard (USCG) is responsible for enforcing U.S. maritime laws and regulations, including safe navigation, and enforcing environmental and pollution prevention regulations.

Federal legislation applicable to the protection of biological resources in the Santa Monica Bay region includes:

- Bald and Golden Eagle Protection Act of 1940;
- Clean Water Act of 1972;
- Coastal Zone Management Act of 1972;
- Endangered Species Act of 1973;
- International Maritime Organization Resolution A.868(20);
- Magnuson-Stevens Fishery Conservation and Management Act of 1996;
- Marine Mammal Protection Act of 1972;
- Marine Protection, Research, and Sanctuary Act of 1972;
- Migratory Bird Treaty Act of 1918;
- National Invasive Species Act of 1996;
- Oil Pollution Act of 1990; and
- Coast Guard regulatory authority.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 protects the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of these birds. Following the delisting of the bald

eagle as an endangered species in 2007, the Act is now the primary oversight authority regulating potential impacts to the bald eagle. The USFWS reviews actions that might affect these species.

Clean Water Act

The 1972 Federal Water Pollution Control Act and its 1977 amendments, collectively known as the Clean Water Act (CWA), established national water-quality goals. The CWA also created a NPDES of permits that specified minimum standards for discharged water quality. It requires states to establish standards specific to water bodies and designated the types of pollutants to be regulated, including total suspended solids and oil. The CWA also establishes guidelines for the discharge of dredged or fill materials and for the prevention of such discharges, individually or in combination with other activities, from having unacceptable adverse impacts on the ecosystem. Compliance with the CWA is provided by approval of a NPDES permit from the California State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCB).

Coast Guard Regulatory Authority

Primary responsibility for the enforcement of U.S. maritime laws and regulations falls upon the USCG. The USCG is responsible for managing and regulating provisions for safe navigation of vessels in U.S. waters, as well as enforcing environmental and pollution prevention regulations. As such, the USCG regulates hazardous working conditions on the OCS, manages and regulates measures for pollution prevention in territorial waters, and implements provisions in the Oil Pollution Act and the Marine Plastic Pollution Research and Control Act. The USCG also enforces the CWA, including approving procedures and equipment for transferring oil from vessel to vessel and between onshore and offshore facilities and vessels. The USCG also conducts pollution surveillance patrols to detect oil discharges within the territorial sea and contiguous zone and has enforcement authority over violations. The USCG maintains strike team responsibilities in the event of an oil spill.

Coastal Zone Management Act

In accordance with the Coastal Zone Management Act and the Coastal Zone Act Reauthorization Amendments of 1990, all Federal activities must be consistent, to the maximum extent practicable, with the enforceable policies of each affected state's coastal zone management program. Each state's Coastal Zone Management program

sets forth objectives, policies, and standards regarding public and private use of land and water resources in the coastal zone.

Endangered Species Act

The Endangered Species Act of 1973, as amended, protects and conserves threatened and endangered species and their ecosystems. The USFWS and the NMFS administer the ESA. Section 7 of the ESA governs interagency cooperation and consultation to ensure that activities do not jeopardize the existence of threatened or endangered species or result in adverse impacts, modification, or destruction of their critical habitat.

International Maritime Organization Resolution A.868(20)

In 1997, the IMO adopted Resolution A.868(20) (Guidelines for the Control and Management of Ship's Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens). The key aspect of the Resolution is the development and maintenance of ship-specific ballast water management plans. Prior to 1997, Congress enacted the National Invasive Species Act of 1996, and the USCG published interim rules in 1999 and finalized them in 2001. These regulations created mandatory ballast water reporting requirements for qualified voyages into U.S. ports and voluntary ballast water management practices. In 2004, these voluntary practices became mandatory for the most part. In 1999, California Assembly Bill 703 codified the Ballast Water Management for Control of Non-Indigenous Species under Division 36 of the Public Resources Code. This bill was repealed on January 1, 2004, and California's Marine Invasive Species Act replaced it. All aspects of this Act are mandatory for qualified voyages within California waters. In February 2004, the IMO adopted the International Convention for the Control and Management of Ship's Ballast Water and Sediments. This convention is not yet in force as it has not been ratified by the member nations.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 is the cornerstone legislation of fisheries management in U.S. jurisdictional waters. Its purpose was to stop overfishing by foreign fleets and aid in developing the domestic fishing industry. The Act gave the U.S. sole management authority over all living resources within the 200-nm (370-km) exclusive economic zone of the U.S. The Act created eight regional Fishery Management Councils and mandated the councils to continue planning and management programs for marine fisheries. The Act, as amended, requires preparation of a Fishery Management Plan, based upon the best available scientific and economic data, for each commercial species or group of related

species of fish that needs conservation and management within each respective region. The Pacific Fishery Management Council is the regional council for the Pacific OCS. In accordance with the Act, the Council's report directly to the U.S. Secretary of Commerce, who reviews, approves, and prepares fishery management plans. In practice, this function is delegated to the Administrator of the NOAA and the NMFS.

The Act has been amended several times. In 1996, Federal law governing fisheries management was overhauled. The amendments, the Sustainable Fisheries Act of 1996, identified fish habitat as critical to healthy fish stocks and sustainable fisheries. The Act implemented a program to designate and conserve Essential Fish Habitat for species managed under a Fishery Management Plan. Essential Fish Habitat is "those waters and substrate necessary for spawning, breeding, feeding, or growth to maturity." The intention is to minimize any adverse effects on habitat caused by fishing or non-fishing activities and to identify other actions to encourage the conservation and enhancement of such habitat. The documents prepared for West Coast groundfish Essential Fish Habitat include all species of rockfish managed by the Pacific Fishery Management Council (Bloeser 1999).

Marine Mammal Protection Act

Under the Marine Mammal Protection Act of 1972, the Secretary of Commerce delegated the authority to protect all cetaceans and pinnipeds to the NMFS. The Secretary of the Interior is responsible for protecting sea otters and delegated this authority to the USFWS.

The Marine Mammal Protection Act established a moratorium on the taking of marine mammals in waters under U.S. jurisdiction. Under the Act, "taking" includes hunting, capturing, and killing and attempting to harass, hunt, capture, or kill any marine mammal. "Harassment" is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild, or that has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering. The moratorium may be waived when the affected species or population stock is within its optimum sustainable population range and would not be disadvantaged by the authorized taking. The Act directs the Secretary of Commerce, upon request, to authorize the unintentional taking of small numbers of marine mammals incidental to activities other than commercial fishing when, after notice and opportunity for public comment, the Secretary finds that

the total of such taking during a five-year (or shorter) period would have a negligible impact on the affected species.

Marine Protection, Research, and Sanctuary Act

In 1972, this Act established the National Marine Sanctuary Program, which is administered by the NOAA of the Department of Commerce. The act authorized the designation of National Marine Sanctuaries to protect significant waters and secure habitat for aquatic species, shelter historically significant shipwrecks and other cultural resources, and serve as valuable spots for research, fishing, wildlife viewing, boating, and tourism.

Migratory Bird Treaty Act and Executive Order 13186

The Migratory Bird Treaty Act (MBTA) governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts,and nests. The MBTA's regulation on taking migratory birds governs educational, scientific, and recreational taking and requires any harvest be limited to levels that prevent overuse. Further, the MBTA prohibits the taking, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase, or barter any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11). Certain exceptions apply to employees of the Department of the Interior, Federal agencies, state game departments, municipal game farms or parks, and public museums, public zoological parks, accredited institutional members of the American Association of Zoological Parks and Aquariums (now called the American Zoo and Aquarium Association) and public scientific or educational institutions.

Executive Order 13186 (effective January 10, 2001), outlines the responsibilities of Federal agencies to protect migratory birds in furtherance of the MBTA, the Bald and Golden Eagle Protection Acts, the Fish and Wildlife Coordination Act, the ESA, and the National Environmental Policy Act. This order specifies:

- The USFWS as the lead agency for coordinating and implementing Executive Order 13186;
- Requirements for Federal agencies to incorporate migratory bird protection measures into their activities; and
- Requirements for Federal agencies to obtain permits from the USFWS before any "take" occurs, even when the agency's intent is not to kill or injure migratory birds.

National Invasive Species Act

The National Invasive Species Act is the U.S.'s chief protection against new aquatic invaders. Originally passed in 1990 as the Nonindigenous Aquatic Nuisance Prevention and Control Act, this legislation recognized the global movement of aquatic species, particularly those that arrive in ballast water. The Act was passed in response to the invasion of the zebra mussel and damage to the Great Lakes by other species. The law was reauthorized, renamed the National Invasive Species Act, and expanded in 1996. With its reauthorization, the Act established the Federal interagency Aquatic Nuisance Species Task Force, which became a key resource for regional and state efforts. Ships arriving from outside the 200-mile (321.9-km) U.S. Exclusive Economic Zone were encouraged to exchange their ballast water and required to report whether they exchanged it. The National Invasive Species Act also authorized important research and linked its results to decisions to the necessity of further ballast water regulation.

Oil Pollution Act of 1990

The Oil Pollution Act of 1990 established a single uniform Federal system of liability and compensation for damage caused by oil spills in U.S. navigable waters. The Act requires removal of spilled oil and establishes a national system of planning for and responding to oil spill incidents. It includes provisions to:

- Improve oil-spill prevention, preparedness, and response capability;
- Establish limitations on liabilities for damages resulting from oil pollution;
- Provide funding for natural resource damage assessments;
- Implement a fund for the payment of compensation for such damages; and
- Establish an oil pollution research and development program.

The Secretary of the Interior is responsible for spill prevention, oil-spill contingency plans, oil-spill containment and cleanup equipment, financial responsibility certification, and civil penalties for offshore facilities and associated pipelines in all Federal and state waters. The U.S. Department of Transportation (the USCD) was designated as the lead agency for offshore oil spill response, which includes responsibility for coordination of Federal responses to marine emergencies. The Uscg is also responsible for enforcing vessel compliance with the Act.

State

The CDFG is the lead agency responsible for protecting biological resources at the state level. The CDFG is obligated to protect species that are officially listed as threatened or endangered by the state of California, candidates for listing as threatened or endangered, and California Species of Special Concern. The CDFG regulates fishing and hunting, protects the habitat quality of the State's biological resources, and administers the California Oil Spill Prevention and Response Act (OSPRA). The SWRCB sets water quality standards for the protection of aquatic life. The Los Angeles Regional Water Quality Control Board (LARWQCB) supervises these standards locally.

State legislation applicable to the protection of biological resources in the Santa Monica Bay region includes:

- California Coastal Act of 1976;
- California ESA;
- California Fish and Game Code;
- California Environmental Quality Act of 1970;
- California Harbors and Navigation Code;
- California State Lands Act;
- Coastal Ecosystems Protection Act of 2006;
- California Marine Invasive Species Act of 2004;
- Lempert-Keene-Seastrand Oil Spill Prevention and Response Act; and
- Marine Life Protection Act of 1999;
- California Marine Managed Areas Improvement Act of 2000;
- Porter-Cologne Water Quality Control Act;
- California Ocean Plan; and
- Executive Order W-59-93 (State Wetland Conservation Policy).

California Coastal Act

The California Coastal Act (Coastal Act) became law in 1976 to provide a comprehensive framework to protect and manage coastal resources. The main goals of the Act are to protect and restore coastal zone resources, to ensure balanced and orderly utilization of such resources, to maximize public access to and along the coast, to ensure priority for coastal dependent and coastal-related development, and to

encourage cooperation between state and local agencies toward achieving the Act's objectives. This includes development and implementation by local governments of Local Coastal Programs that are consistent with the aims and goals of the Coastal Act, and certified by the California Coastal Commission.

The Coastal Act contains policies to guide local and state decision-makers in the management of coastal and marine resources. The Act identifies protective measures for nearshore marine resources.

Coastal Act Section 30230 states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Coastal Act Section 30231 states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Coastal Act Section 30234.5 states:

> *The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

Coastal Act Section 30232 states:

> *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

Coastal Act Section 30240 states:

> *Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

California ESA

The California ESA, administered by the CDFG, parallels the main provisions of the FESA. Under the California ESA, an "endangered species" is a species of plant, fish, or wildlife that is "in serious danger of becoming extinct throughout all, or a significant portion, of its range" and is limited to species or subspecies native to California. The ESA establishes a petitioning process for the listing of threatened or endangered species. The CDFG is required to adopt regulations for this process and establish criteria for determining whether a species is endangered or threatened.

The California ESA prohibits "taking" listed species except as otherwise provided under state law. State lead agencies are required to consult with the CDFG to ensure that any action they undertake are not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat.

California Fish and Game Code

The California Fish and Game Code, specifically, Sections 1601-1603, 1700, 2080.1 and 2081 address streambed alterations, outline restrictions on the trade, transport, and "take" of protected species, and the obligations regarding the marine resources of the state, including fisheries conservation and management.

California Environmental Quality Act (CEQA) of 1970

CEQA is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. It is the California counterpart to NEPA, and was born out of response to the passage of NEPA, and as a means of supplementing NEPA through state law. The CEQA guidelines are found in the California Code of Regulations, in Chapter 3 of Title 14. The guidelines provide objectives, criteria and procedures for the orderly evaluation of

projects and the preparation of environmental impact reports, negative declarations, and mitigated negative declarations by public agencies.

California Harbors and Navigation Code

The California Harbors and Navigation Code regulates discharges from vessels within territorial waters. One of its purposes is to prevent vessel discharges from adversely affecting the marine environment. Section 151 regulates oil discharges and imposes civil penalties and liability for cleanup costs when oil is intentionally or negligently deposited in the waters of California.

California State Lands Act and Coastal Ecosystems Protection Act of 2006

On June 11, 1938, the State Lands Act created the California State Lands Commission (CSLC) and assigned it jurisdiction over state-owned offshore tide and submerged land leases.

The Coastal Ecosystems Protection Act of 2006 directed the CSLC to adopt performance standards for discharging ballast water by January 1, 2008, and prepare a report assessing the availability of treatment technologies to meet those standards (Falkner et al. 2009). The CSLC completed the rulemaking process and adopted the standards in October 2007 as part of its Marine Invasive Species Program. The technology assessment report was completed in December 2007. In response to the report's recommendations, the California Legislature passed Senate Bill 1781 (Chapter 696, Statutes of 2008), which delayed initial implementation of the performance standards from January 1, 2009, to January 1, 2010, and required an update of the technology assessment report by January 1, 2009. CSLC staff are currently conducting the necessary studies and developing rulemaking actions including: (1) establishing ballast water treatment technology testing guidelines; (2) promulgating regulatory language to specify the selection of sampling points (i.e., location) and sampling facilities (i.e., equipment) on vessels; and (3) identifying procedures and protocols for use by CSLC Marine Safety personnel to verify vessel compliance with the performance standards.

The CSLC is also mandated to adopt regulations governing the management of vessel fouling by January 1, 2012, specifically, introduction of nonindigenous invasive species via vectors other than ballast water. Two studies are currently underway to guide the development of these regulations. In January 2008, Hull Husbandry Reporting Forms were used to gather data on fouling-related husbandry practices of the commercial

vessel fleet visiting California waters. In addition, ongoing fouling-related research conducted by the CSLC's Marine Invasive Species Program will better define how husbandry practices and voyage characteristics affect the quantity and quality of fouling biota associated with vessels operating in California.

California Marine Invasive Species Act of 2003

Originally passed in 2003, the purpose of the California Marine Invasive Species Act was to move towards eliminating the discharge of non-indigenous species into the waters of the state or into waters that may impact the waters of the state, based on the best available technology economically achievable. Since its passage, the Act has been amended several times, most recently in 2009.

The Act currently requires mid-ocean exchange or retention of all ballast water and associated sediments for all vessels over 300 gross register tons, United States and foreign, carrying ballast water into the waters of the state after operating outside the waters of the state. For all vessels over 300 gross register tons arriving at a California port or place carrying ballast water from another port or place within the Pacific Coast Region, the Act mandates near-coast exchange or retention of all ballast water

The Act also requires completion and submission of Ballast Water Report Form upon departure from each port of call in California, annual submittal of a hull husbandry reporting form, the keeping of a ballast management plan and logs, and the application of "Good Housekeeping" Practices designed to minimize the transfer and introduction of invasive species.

Lempert-Keene-Seastrand Oil Spill Prevention and Response Act

Under this Act, the Office of Oil Spill Prevention and Response (OSPR) was created and the CDFG became the lead state agency in spill response. The Act requires that persons causing a spill begin immediate cleanup, follow approved contingency plans, and fully mitigate impacts to wildlife. Under an Interagency Agreement with OSPR, the CCC operates an oil spill program and maintains an oil spill staff. Before and after a spill, CCC staff are involved in review and comment to both state (e.g., OSPR) and Federal (e.g., USCG) agencies on contingency plans and regulations related to marine vessels, marine facilities, and marine vessel routing.

Enactment of the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990 expanded the CSLC's responsibilities, resulting in creation of the Marine Facilities Division. This Division is responsible for ensuring that all marine terminals and other oil

and gas facilities within the CSLC's jurisdiction use the best achievable methods to prevent accidents and resulting oil spills. Management responsibilities extend to activities within 3 nm (6 km) seaward of mean low water.

Los Angeles Water Quality Control Plan

The Water Quality Control Plan for the Santa Clara River and Los Angeles River Basins (Basin Plan) is the primary policy document that guides the LARWQCB. Established under the requirements of the 1969 Porter-Cologne Water Quality Control Act, the Basin Plan was originally adopted in 1975, and has been updated regularly. The most recent amendments to the Basin Plan were adopted in October 2009. The Basin Plan assigns beneficial uses (e.g., municipal water supply, water contact recreation) to all waters in the basin. The Basin Plan also sets water quality objectives, subject to approval by the EPA, intended to protect designated beneficial uses. The water quality objectives in the Basin Plan are written to apply to specific parameters (numeric objectives) and general characteristics of the water body (narrative objectives). An example of a narrative objective in the Basin Plan is the requirement that all waters must remain free of toxic substances in concentrations causing detrimental effects on aquatic organisms. Numeric objectives specify concentrations of pollutants that are not to be exceeded in ambient waters of the basin. The water quality objectives are achieved primarily through effluent limitations embodied in the NPDES program.

Marine Life Protection Act

The Marine Life Protection Act (MLPA) of 1999 mandates the redesign of a statewide system of marine protected areas (MPA) that function, to the extent possible, as a network. The act requires the evaluation of existing data for some 220,000 square miles of submerged state lands. Central to the MLPA are six goals intended to guide the development of MPA within California's state waters:

- To protect the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems;
- To help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted;
- To improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and to manage these uses in a manner consistent with protecting biodiversity;

- To protect marine natural heritage, including protection of representative and unique marine life habitats in California waters for their intrinsic value;

- To ensure that MPA have clearly defined objectives, effective management measures, and adequate enforcement, and are based on sound scientific guidelines; and

- To ensure that the MPA are designed and managed, to the extent possible, as a component of a statewide network.

California Marine Managed Areas Improvement Act of 2000

Executive Order W-162-97 designated the California Department of Parks and Recreation (DPR) as the Principal State Agency for marine managed areas. The California Marine Managed Areas Improvement Act of 2000 extends the California Department of Parks and Recreation (DPR) management jurisdiction into the marine environment. It also gives priority to marine protected areas adjacent to protected terrestrial lands. For example, more than 25% of the California coastline is within the State Park System. The act also established the California Marine Managed Areas System.

Porter-Cologne Water Quality Control Act

Since 1973, the SWRCB and its nine RWQCB have been delegated the responsibility for administering permitted discharge into the coastal marine waters of California. Porter-Cologne provides a comprehensive water-quality management system for the protection of California waters and regulates the discharge of oil into navigable waters by imposing civil penalties and damages for negligent or intentional oil spills.

California Ocean Plan

The Water Quality Control Plan, Ocean Waters of California 2005 (California Ocean Plan), is the policy document that guides the State Water Resources Control Board. The California Ocean Plan is applicable to point and non-point sources of waste discharge into the ocean, but it is not applicable to vessel wastes or the control of dredge material disposal or discharge. The Ocean Plan specifies limits or levels of water quality characteristics for ocean waters to protect beneficial uses of ocean waters of California. These beneficial uses include industrial water supply, water and non-contact recreation, navigation, commercial and sport fishing, mariculture, preservation and enhancement of ASBS, rare and endangered species habitat, marine habitat, fish

migration, fish spawning, and shellfish harvesting. The State Water Resources Control Board most recently adopted proposed non-substantive amendments to the California Ocean Plan on September 15, 2009; however, these will not become effective until approved by the Office of Administrative Law (OAL).

Executive Order W-59-93 – California Wetlands Conservation Policy

In August 1993, the Governor announced the California Wetlands Conservation Policy. The goals of the policy are to establish a framework and strategy that:

- Ensures no overall net loss and achieves a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property;
- Reduces procedural complexity in the administration of state and Federal wetlands conservation programs; and
- Encourages partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetlands conservation and restoration.

The Executive Order also directed the California Natural Resources Agency to establish an Interagency Task Force to direct and coordinate administration and implementation of the policy. The Natural Resources Agency and the departments within that agency generally do not authorize or approve projects that fill or harm any type of wetlands. Exceptions may be granted for projects meeting all the following conditions: the project is water dependent; there is no other feasible alternative; the public trust is not adversely affected; and the project adequately compensates the loss.

Local

Local legislation applicable to the protection of biological resources in the Project area includes:

- County of Los Angeles Local Coastal Plan;
- City of El Segundo Local Coastal Plan;
- The Santa Monica Bay Restoration Plan; and
- Ballona Wetlands Restoration Plan (currently in draft).

The County of Los Angeles and City of El Segundo Local Coastal Plans

Both the County of Los Angeles and the City of El Segundo have Local Coastal Plans that have been certified by the California Coastal Commission as being consistent with the goals and directives of the California Coastal Act. These plans allow the local governments to directly apply the development, conservation, environmental and public access protection goals of the Coastal Act to development within their jurisdictions.

The Santa Monica Bay Restoration Plan (BRP)

Originally adopted in 2005 and updated in 2008, the BRP is a comprehensive conservation management plan for protection and management of the Santa Monica Bay. It identifies actions that address problems affecting the health of the Santa Monica Bay, such as storm water and urban runoff pollution, habitat loss and degradation, and public health risks associated with seafood consumption and degraded water quality. The Plan outlines specific programs to address the environmental problems facing the Bay as well as outlining strategies, timelines, and funding needs. The development and implementation of the BRP are mandated by the Bay's identification and participation in the National Estuary Program.

The Ballona Wetlands Restoration Plan

In 2004, the State of California took title to 600-acres of the former Ballona Wetlands. The property is currently owned by two state agencies, the DFG and the CSLC. Additionally, the State Coastal Conservancy has funding for planning and restoring the property. The three agencies are working together with stakeholders and other agencies to develop a plan for restoration of the wetlands. Primary goals of the plan will be to restore, enhance, and create estuarine habitat and processes in the Ballona ecosystem to support a natural range of habitat and functions, especially as related to estuarine dependent plants and animals. Additionally, the plan will seek to create opportunities for aesthetic, cultural, recreation, research and educational uses of the wetlands that are compatible with the environmentally sensitive resources of the area.

4.3.6 Significance Criteria

This section describes criteria for evaluating the significance of Project-related activities or incidents that may result in impacts to off- and onshore biological resources. In general, the persistence, extent, and amplitude of such impacts dictate their significance. The significance of impacts to specific living resources can largely be determined from existing laws and regulations, such as the MMPA or the California

ESA. The location of the impact, for example, if it occurs within a sensitive habitat such as a wetland or marine sanctuary, can also determine its significance.

Impacts to biological resources would be considered significant if the proposed Project results in:

- Potential for any part of the population of a threatened, endangered, or candidate species to be directly affected, or if its habitat is lost or disturbed;
- Any "take" of a Federal- or state-listed endangered, threatened, regulated, fully protected, or sensitive species;
- Prolonged disturbance to, or destruction of, the habitat (or its functional habitat value) of a species that is recognized as biologically or economically significant in local, state, or Federal policies, statutes, or regulations;
- A net loss in the functional habitat value of: a sensitive biological habitat, including salt, freshwater, or brackish marsh; marine mammal haul-out or breeding area; eelgrass; river mouth; coastal lagoon or estuary; seabird rookery; or Area of Special Biological Significance;
- Permanent change in the community composition or ecosystem relationships among species that are recognized for scientific, recreational, ecological, or commercial importance;
- Permanent alteration or destruction of habitat that precludes re-establishment of native biological populations;
- Potential for the movement or migration of fish or wildlife to be impeded; or
- A substantial loss in the population or habitat of any native fish, wildlife, or vegetation, or if there is an overall loss of biological diversity. Substantial is defined as any change that could be detected over natural variability.

An impact to commercial and sport fisheries would be considered significant if the proposed Project would result in:

- Activities that would temporarily reduce any fishery in the vicinity by 10 percent or more during a season, or reduce any fishery by five percent or more for more than one season;
- Activities that would affect kelp and aquaculture harvest areas by five percent or more;

- Loss or damage to commercial fishing or kelp harvesting equipment; or
- Harvesting time lost due to harbor closures, impacts on living marine resources and habitat, and equipment or vessel loss, damage, or subsequent replacement.

4.3.7 Impact Analysis and Mitigation Measures

As discussed in Section 2.0, Project Description, the proposed Project involves entering into a new 30-year lease of tide and submerged state lands from the CSLC for continued operations at the Marine Terminal. The proposed Project would involve the continuation of existing operations as well as the implementation of future maintenance activities. Although equipment configurations would remain the same, the number of vessel calls to the terminal may increase over existing conditions.

Impacts from the proposed Project on biological resources fall into two main categories: those that would potentially be expected to occur as part of routine Marine Terminal operations, and those that may occur as the result of an accident, primarily an oil spill.

For example, during routine operations, marine organisms could be disturbed by noise and water column agitation caused by ship maneuvering and routine on- and off-loading operations. Ships traveling to or from the Marine Terminal could also collide with marine mammals or sea turtles, or interfere with commercial and recreational fishing in the area. Chronic inputs from Chevron's treated stormwater outfall, and incidental vessel or pipeline leaks or releases that may not be detected or recorded would also fall into this category. In addition, construction and maintenance activities associated with the proposed Project also have the potential to impact marine and onshore biota. These construction activities could include repair and installation of the pipelines between the onshore facilities and the offshore marine terminal berths.

Impacts from the release of one pint or more of oil, which are considered spills, would not be considered routine and could impact both marine and onshore environments. Section 4.1, System Safety, Reliability and Hazardous Materials, describes the potential for, and extent of accidental oil spills that may result from the proposed Project. The release of hydrocarbons has the potential to adversely affect onshore and offshore biological resources at levels that exceed the significance criteria. Impacts to water quality, which form the basis for some of the impacts discussed in this Section, are presented in detail in Section 4.2, Water and Sediment Quality.

The severity of potential impacts to marine and onshore biological resources from the proposed Project would depend substantially on their location. For example, if an

accidental oil spill occurred and was contained offshore, then primary impacts would occur to sea surface habitats in the open ocean, while seafloor habitats would only be affected to the degree that weathered oil was assimilated into detritus and other particulates deposited on the ocean bottom. Similarly, shoreline habitats would only be impacted if a spill reached the shoreline, but as these are among the most ecologically sensitive habitats impacts would likely be substantial.

Although kelp resources within the Santa Monica Bay are limited to the extreme northern and southern sections of the Bay, kelp beds are prevalent along much of the rest of the coast within the SCB (see Appendix G). Kelp beds along the California coast are harvested for a variety of uses under the auspices of the CDFG. The oil spill modeling results summarized in Figures 4.1-1, 4.1-3, and 4.1-5 in Section 4.1, System Safety and Reliability, indicate that an oil spill from the Proposed Project could potentially impact kelp beds from San Diego to Santa Barbara counties, including those surrounding the Channel Islands.

The effects of oil spills on beds of Macrocystis (giant kelp) along the Pacific Coast have been examined several times. After the tanker *Tampico* spill in 1957 in Baja California, North et al. reported high mortality of invertebrates but no damage to Macrocystis (1964). Within five months of the spill, they reported increased amounts of algal vegetation, including Macrocystis. North et al. reported that the oil had killed sea urchins that had been maintaining the bottom (minimizing growth through consumption), and once the sea urchins were killed, Macrocystis and other algal species began to develop (1964). The kelp had recruited and produced a canopy in the cove approximately 18 months following the spill.

The 1969 Santa Barbara crude oil spill impacted a large portion of the mainland coast and Channel Islands (Foster et al. 1971a). Even though considerable quantities of crude oil fouled the surface canopies, there was little damage to the Macrocystis beds (Foster et al. 1971b). The partially weathered crude oil appeared to stay on the surface of the water and did not adhere to the fronds of the giant kelp. Mucous on the fronds and blades of kelp plants appears to inhibit oil from sticking to the plants. Additionally, natural seeps in the Santa Barbara Channel do not appear to cause visible damage to Macrocystis, and extensive canopies regularly develop in these beds.

The literature indicates that an oil spill or its cleanup cause little damage to kelp beds. Should damage occur, recruitment and recolonization occurs rapidly. Therefore, although impacts could occur to kelp canopies which could affect commercial kelp